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SOIL EROSION CONTROL IN 1933

A radio conversation among H. H. Bennett, L. A. Jones, and Morse Salisbury, broadcast in the Department of Agriculture period, National Farm and Home Hour, Monday, March 20, 1933, by a network of 50 associate NBC radio stations.

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SALISBURY:

The crop season is getting underway with a rush in the far South. In the North the signs of spring are flaunting against the landscape. In the Farm and Home Hour programs the winter discussions of cutting costs in 1933 must give way to current reports on how farm people are carrying out the program of low-cost production this year. But we must have just one more go at this national and individual problem of controlling soil erosion. So our friends Soil Scientist H. H. Bennett, and Engineer L. A. Jones have met before the microphone to talk over the need for and the methods of soil erosion control this year. Mr. Bennett, let's have your view, again, of the soil erosion menace as a national problem:

BENNETT:

I've given the facts to this audience many times. But new evidence comes to light nearly every month. Here are some new figures from the experiment station near Guthrie, Oklahoma. At that station the rate of erosion is such that unprotected land continuously in cotton would lose all its topsoil down to stiff clay in 30 years; in grass it would hold the top soil for 32,000 years; in woodland, for 75,000 years.

I have just returned from the Tennessee Valley. In that region, which we have not heretofore studied in detail, land continues to be cleared on slopes so steep that the farmers count on the surface soil being washed off, down to poor subsoil, in from 3 to 10 years. This erosion-exposed subsoil produces less than 10 bushels of corn per acre and only about 8 bushels of wheat. At this stage of man-produced soil poverty, the land is thrown out of cultivation and new fields are cleared. Now, these fields are reaching up to the very crest of the valley ridges. Numerous small farmers are thus misusing land that is suitable only for forestry, or, at the best, for continuous grass or lespedeza. Even some of the smoother valley lands, originally high-grade limestone soils, have been terribly impoverished by sheet washing, to the extent of 100 per cent of the area across some of the valleys. The citizens of this region are beginning to appreciate that such destructiveness can not be permitted to continue. Thus far, practically nothing has been done to remedy the situation, except that an occasional farmer is putting his steeper slopes to grass and is plowing only the gentler slopes and the flat alluvial bottoms.

SALISBURY:

Yes, those new figures certainly impress upon you the danger to the individual farmer's investment of allowing erosion to go unrestrained.

(over)

BENNETT:

And I have often emphasized the menace of erosion to the nation. Erosion already has destroyed for crop production more than 25 million acres of land; and enormously reduced the productivity of more than 100 million acres of the 350 million now tilled. Our crop yields per acre are ~~going down, not up~~, in spite of the use of better seed of better varieties, increased amounts of fertilizers, lime, soil-improving crops, and more and better farm machinery. The answer is ----- erosion; erosion that eats away soil fertility faster than we can build it.

SALISBURY:

What's the engineer have to say about it, Mr. Jones?

JONES:

We agree completely.

SALISBURY:

But now, as the popular song has it, riddle me this: What's the answer, so far as erosion control goes, to the individual farmer's problem this spring of cutting cash costs of production?

JONES:

Well, Salisbury, I just received Saturday some reports from Texas county agents showing that the terracing method of erosion control costs little, and more than repays its cost not only by protecting land values, but by increasing crop yields per acre.

SALISBURY:

For instance?

JONES:

Well, here's one from Burleson county, Texas. Fourteen farmers reported building new terraces last year. Their average increase in cotton yield was 175 pounds of seed cotton per acre; in corn yields, 8 bushels and 21 pounds per acre. They valued those terraces at \$7.25 per acre. The terraces cost \$2 an acre.

SALISBURY:

That's pretty strong argument. What's the rest of the story. I mean the application of those 1932 figures to 1933 conditions?

JONES:

Well, it figures out this way. The main cost of making terraces is labor. Labor is plentiful this year on a good many farms. It looks as if money and labor put into terraces paid good dividends last year. This year, with indications of a possibility of better prices for farm products, and with labor available, it looks as if terraces might pay better dividends than they did last year.

SALISBURY:

All right, Mr. Jones, we'll come back to this terracing thing a little later. Just now, maybe Mr. Bennett will tell us about other methods of cutting down erosion losses as they have proved out at the erosion experiment stations and in the experience of farmers.

BENNETT:

All right. Now I guess we may as well start from the fact that vegetation of all kinds slows down erosion. The thicker the cover on the land, the slower the erosion. For instance, in our Western Kansas Experiments, we have found grass 3,600 times as effective as row crops, like kafir corn, in holding back soil, and 434 times better for retaining rain water.

SALISBURY:

That's mighty important in the Great plains. Now will you give us a list, Mr. Bennett, of the other methods you have found effective in controlling erosion?

BENNETT:

Well, of course ground covers of wheat straw and forest litter and so on, are helpful. Then, we have found that vegetable matter incorporated into the soil largely reduces erosion.

SALISBURY:

So the cue is to build up humus content by such things as plowing in straw, soybean stalks and other material left over from the last crop, as well as manure from the stable.

BENNETT:

Yes, that's it, although there does seem to be a limit beyond which incorporating vegetable matter in the soil will not be of benefit. Continuing my list, crop rotations save soil. So does strip cropping, and the growing of cover crops both during summer and winter.

SALISBURY:

Will you explain that, Mr. Bennett?

BENNETT:

Yes, strip cropping is the growing of thick crops such as grain sorghum, oats, lespedeza and alfalfa in strips along the contours, between clean-tilled crops. To give you an example of how well it works, last year at our experiment station in central Texas we grew cotton sandwiched in between strips of sorghum, and sweet clover; more than 30 inches of rain fell; but we lost only a trace of soil. On ground of the same slope planted to corn we lost 20 tons of soil per acre.

BENNETT: (cont.)

Another method of erosion control that works in the wheat sections of the Great Plains and of the Palouse region in the Pacific Northwest is to scarify land with our new machine which digs 10 thousand holes an acre to hold back the rain-water.

And, of course, terraces, combined with the proper cultural methods to help maintain the terraces are the main reliance for permanent, effective erosion control, on slopes that are not excessively steep. Only vegetation can be depended on to control erosion on the steeper slopes, much of which we unwisely continue to cultivate. I think Jones ought to give you some of the recent facts about terracing.

SALISBURY:

How about it, Mr. Jones?

JONES:

I'd like to tell you the story of William Janeczek, a farmer who spoke last month at a farmer's meeting in Linn County, Missouri.

SALISBURY:

All right, fine.

JONES:

Well, Mr. Janeczek told about the number of terraces he had built on his farm last fall, and how they had held the soil during the heavy rains last month. But I think the thing you'd most like to hear about was his description of how he became convinced of the value of terraces.

BENNETT:

Let's have it.

JONES:

All right, here it is. He tells it in his own words.

"Where I was convinced of the practical value of the terrace was on a small field of about two acres that was subject to a flow of water from higher lying land. Neglect had permitted six gullies to form, varying in depth from one to three feet, and about 100 feet in length. Smaller laterals had formed so that the field was just a network of gullies.

"I filled the deeper gullies with straw, brush, logs, and other rubbish, the smaller ones with straw only, and plowed all in and leveled the field off fairly well.

"That year was our dry season and the soil stayed put and I thought my problem had been solved. The following fall a very heavy rain fell and all my filling and more flowed into Strawberry Branch and the field was in worse shape than ever before.

"I did some more draining of another sort that need not here be described, and left the field to its fate.

"That fall (in 1931) I received a letter from our county agent, inviting me to a terracing demonstration on the farm of a neighbor. I went.

"The next spring (in 1932) on the strength of the terracing demonstration, I again attacked my gullies, but with more confidence of success. First of all, I build a small terrace at the head of the high end of the gullies. I had no surveying instrument, so the laying off was mostly guess work. I refilled the ditches plowed what remained of the soil, fertilized it, planted soybeans and raised a very good crop. The terrace, while only a makeshift held, and deflected the water to the side of the field and all filling remained in place.

"Encouraged by this small scale successful operation, I bought a farm level. My wife acted as 'rod man.' Together we laid off 10 terraces. I built five of them with a tractor and road grader. The cost was rather expensive considering the area involved. So I built the other five terraces with a walking plow and small wooden road drag. But these tools are not good equipment for such work.

"I do believe that the walking plow supplemented by a small horse-drawn terracer, made expressly for this work, will answer very well. Several neighbors can club together and buy a terracing plow at small cost per member. Of course, they also will need a slip scraper at the terrace outlets and in the building of dams in low places."

There's Mr. Janecheck's story about his terracing experience.

SALISBURY:

Well, what's the moral? Every story we tell must have a moral to it.

JONES:

I'd say the moral is that you can do terracing with homemade equipment, and at small cash cost; the main expense is the labor. That is small this year. The returns come in the form of immediately increased crop yields per acre and higher land values. Now is the time for terracing in the North. It's too late in most of the South. But in both North and South, Farm and Home Hour listeners, maintain your terraces carefully each year. It's no good terracing if you don't keep up the terraces.

SALISBURY:

Thank you very much, Mr. Jones, and Mr. Bennett. On behalf of both of these gentlemen, and the Department of Agriculture, let me advise you Farm and Home listeners interested in erosion control to consult with your county agricultural agent on ways and means.

